

Department of Veterans Affairs Sioux Falls VA Health Care System Install New Transformers for Buildings 28 and 38

Sioux Falls, South Dakota
CONSTRUCTION DOCUMENTS

December 31, 2012
VA Project # 438-13-103
TSP Project # 04121073 PRIORITY 1

INDEX TO DRAWINGS

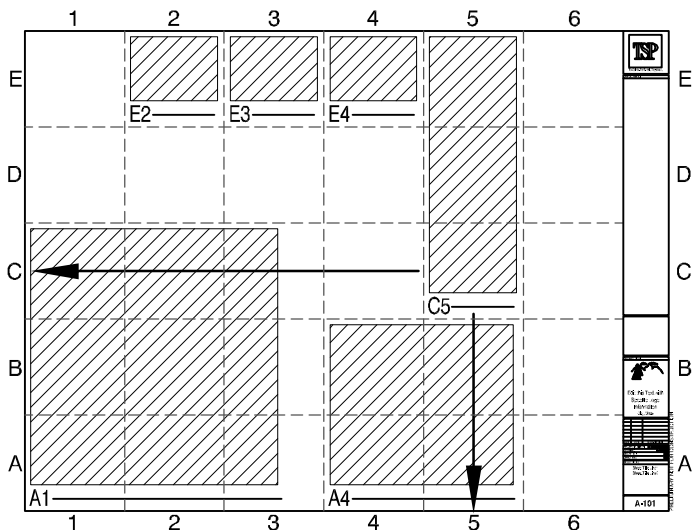
1-GI001 COVER SHEET

ELECTRICAL
E-101 ELECTRICAL SITE PLAN
E-101 ELECTRICAL PLANS - BUILDINGS 5
E-102 ELECTRICAL PLANS - BUILDINGS 11, 24, 28
E-501 ELECTRICAL SCHEDULES
E-601 ELECTRICAL RISER DIAGRAM - SITE
E-602 ELECTRICAL RISER DIAGRAMS AND DETAILS

SHEET IDENTIFICATION

E - 001			
E D N N N			
DISCIPLINE CHARACTER	MODIFIER CHARACTER	SHEET SEQUENCE NUMBER 01-99	SHEET TYPE DESIGNATOR
MODIFIER CHARACTER DESIGNATORS			
S = SITE			
D = DEMOLITION			
L = LIGHTING			
P = POWER			
Y = AUXILIARY			
I = INSTRUMENTATION			
T = TELECOMMUNICATIONS			
SHEET TYPE DESIGNATORS			
0 = GENERAL (SYMBOLS LEGEND)			
1 = PLANS (HORIZONTAL VIEWS)			
2 = ELEVATIONS (VERTICAL VIEWS)			
3 = SECTIONS (SECTIONAL VIEWS)			
4 = LARGE SCALE VIEWS			
5 = DETAILS			
6 = SCHEDULES AND DIAGRAMS			
7 = USER DEFINED			
8 = USER DEFINED			
9 = 3D REPRESENTATIONS			

COORDINATE SYSTEM

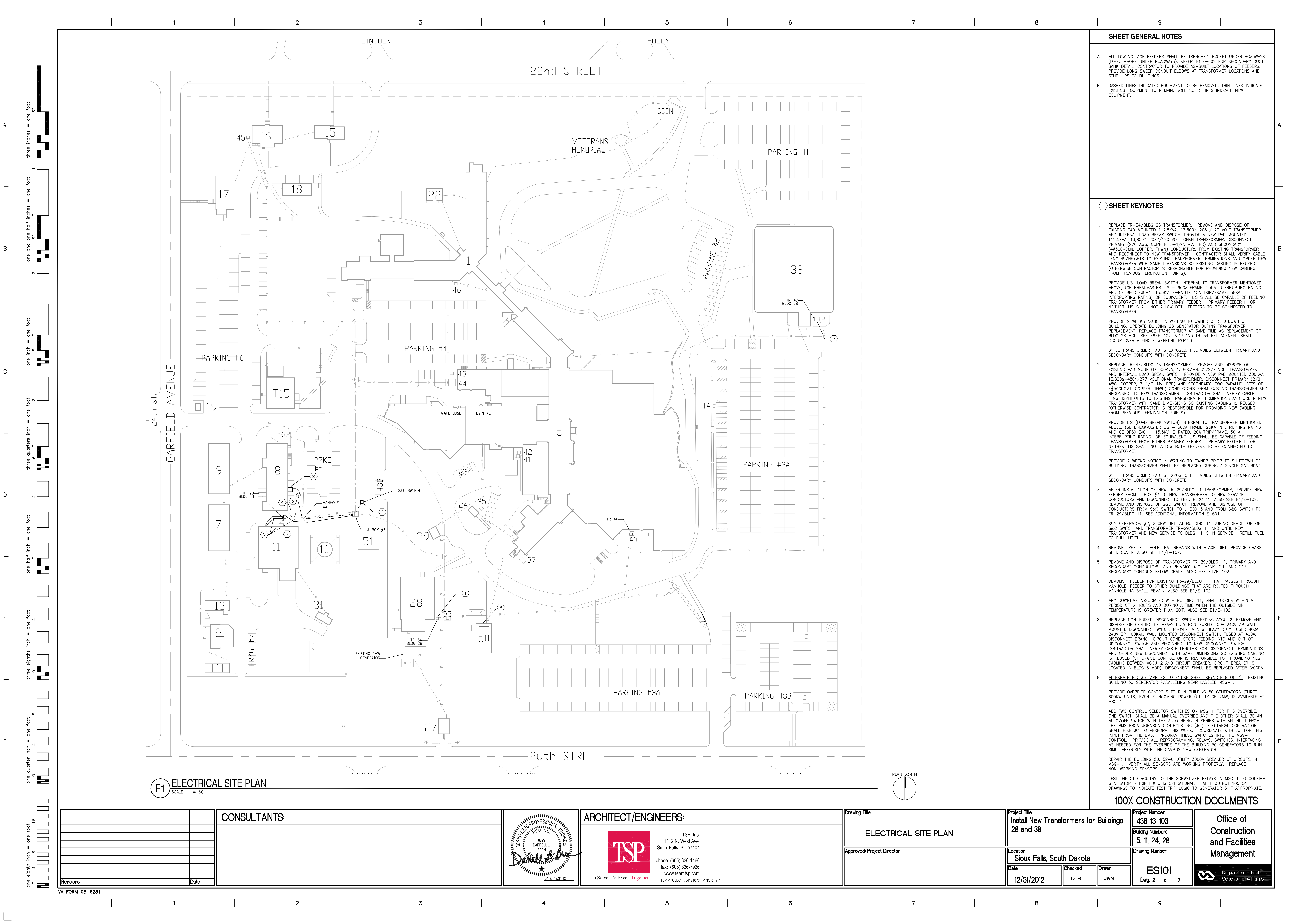


ABBREVIATIONS

AFC	ABOVE FINISHED COUNTER, INSTALLED DEVICE 8"	FLUOR	FLUORESCENT	NC	NORMALLY CLOSED
AFF	ABOVE COUNTERTOP	FLA	FULL LOAD AMPERES	NO	NORMALLY OPEN
AFG	ABOVE FINISHED FLOOR	FBO	FURNISHED BY OWNER	PNL	PANEL
AHU	AIR HANDLING UNIT	FUSE	FUSE	PH	PHASE
ALUM	ALUMINUM	PVNR	FULL VOLT NON-REVERSE	PL	PILOT LIGHT
AMP/A	AMPERE	CC	GENERAL CONTRACTOR	PVC	POLYVINYL CHLORIDE, CONDUIT
A/E	ARCHITECT/ENGINEER	GND	GROUND	PF	POWER FACTOR
X-NC	AUXILIARY CONTACTS, NORMALLY CLOSED	GF/GFCI	GROUND FAULT CIRCUIT INTERRUPTER	PRV	POWER ROOF VENTILATOR
X-NO	AUXILIARY CONTACTS, NORMALLY OPEN	NOA	HAND-OFF-AUTOMATIC SELECTOR SWITCH	RECPT	RECEPTACLE
CUH	CABINET UNIT HEATER	HTR	HEATER	RMC	RIGID METAL CONDUIT
CLG	CEILING	HP	HORSEPOWER	SN	SOLID NEUTRAL
CKT	CIRCUIT	IC	INTER interrupting CIRCUIT	SW	SWITCH
CS/CB	COMBINATION STARTER, CIRCUIT BREAKER DISCONNECT	IG	ISOLATED GROUND	TEL	TELEPHONE
CS/FD	COMBINATION STARTER, FUSED DISCONNECT	J-BOX	JUNCTION BOX	TR	TAMPER RESISTANT
CS/NFD	COMBINATION STARTER, NON-FUSED DISCONNECT	KV	KILOVOLT	TRC	TEMPERATURE CONTROLS CONTRACTOR
C	CONDUIT	KVA	KILOVOLT AMPERE	TSTAT	THERMOSTAT
CU	COPPER	KW	KILOWATT	XFMR	TRANSFORMER
KCM	THOUSAND CIRCULAR MILS	KWH	KILOWATT HOUR	TYP	TYPICAL
DISTR	DISTRIBUTION	LTS	LIGHTING	UH	UNIT HEATER
DIV	DIVISION	MDP	MAIN DISTRIBUTION PANEL	UV	UNIT VENTILATOR
DF	DOUBLE FACE	MLO	MAIN LUGS ONLY	VFD	VARIABLE FREQUENCY DRIVE
DN	DOWN	MAN	MANUAL	V	VOLT
EC	ELECTRICAL CONTRACTOR	MMS	MANUAL MOTOR STARTER	VA	VOLT AMPERE
EMT	ELECTRICAL METALLIC TUBE	MFRS	MANUFACTURERS	VAC	VOLTS, ALTERNATING CURRENT
EWC	ELECTRIC WATER COOLER	MC	MECHANICAL CONTRACTOR	VDC	VOLTS, DIRECT CURRENT
EM	EMERGENCY	M	METER	WTR	WATER
EQUIP	EQUIPMENT	MCC	MOTOR CONTROL CENTER	W	WATT
EF	EXHAUST FAN	MSS	MOTOR STARTER SWITCH	WP	WEATHER PROOF
EPHF	EXPLOSION PROOF	MTD	MOUNTED	W/O	WITHOUT
FA	FIRE ALARM	MDA	MULTI-OUTLET ASSEMBLY	Y	WYE CONNECTED
		NEC	NATIONAL ELECTRICAL CODE		
		NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION		

100% CONSTRUCTION DOCUMENTS

CONSULTANTS:			ARCHITECT/ENGINEERS:		Drawing Title COVER SHEET	Project Title Install New Transformers for Buildings 28 and 38	Project Number 438-13-103	Building Numbers 5, 11, 24, 28	Office of Construction and Facilities Management			
Revisions:			 TSP, Inc. 1112 N. West Ave. Sioux Falls, SD 57104 phone: (605) 336-1160 fax: (605) 336-7926 www.teamtsp.com TSP PROJECT #04121073 - PRIORITY 1									
Date		Approved: Project Director		Location Sioux Falls, South Dakota		Drawing Number 1-GI001		Dwg. 1 of 7				
12/31/2012		Checked DLB		Drawn JWN								



SHEET GENERAL NOTES

- A. ALL LOW VOLTAGE FEEDERS SHALL BE TRENCHED, EXCEPT UNDER ROADWAYS (DIRECT-BORE UNDER ROADWAYS), REFER TO E-602 FOR SECONDARY DUCT BANK DETAIL. CONTRACTOR TO PROVIDE AS-BUILT LOCATIONS OF FEEDERS. PROVIDE LONG SWEEP CONDUIT ELBOWS AT TRANSFORMER LOCATIONS AND STUB-UPS TO BUILDINGS.
- B. DASHED LINES INDICATED EQUIPMENT TO BE REMOVED, THIN LINES INDICATE EXISTING EQUIPMENT TO REMAIN. BOLD SOLID LINES INDICATE NEW EQUIPMENT.

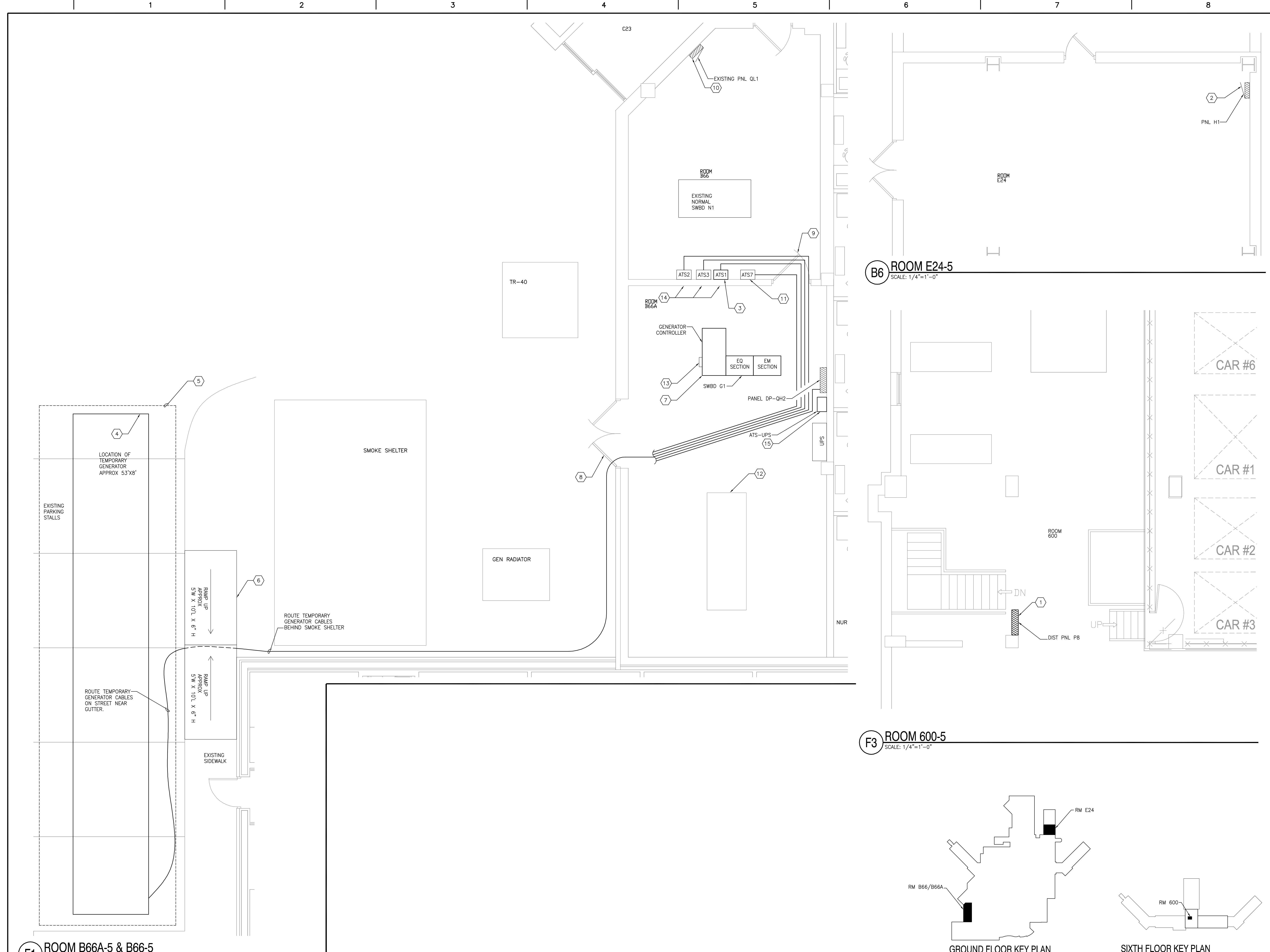
SHEET KEYNOTES

1. REPLACE TR-34/BLDG 28 TRANSFORMER. REMOVE AND DISPOSE OF EXISTING PAD MOUNTED 112.5KVA, 13,800V-208Y/120 VOLT TRANSFORMER AND INTERNAL LOAD BREAK SWITCH. PROVIDE A NEW PAD MOUNTED 112.5KVA, 13,800V-208Y/120 VOLT ONAN TRANSFORMER. DISCONNECT PRIMARY (2/0 AWG, COPPER, 3-1/0, MV, EPR) AND SECONDARY (4#500KCMIL COPPER, THWN) CONDUCTORS FROM EXISTING TRANSFORMER AND RECONNECT TO NEW TRANSFORMER. CONTRACTOR SHALL VERIFY CABLE LENGTHS/HEIGHTS TO EXISTING TRANSFORMER TERMINATIONS AND ORDER NEW TRANSFORMER WITH SAME DIMENSIONS SO EXISTING CABLING IS REUSED (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLING FROM PREVIOUS TERMINATION POINTS).
- PROVIDE LIS (LOAD BREAK SWITCH) INTERNAL TO TRANSFORMER MENTIONED ABOVE. (GE BREAKMASTER LIS - 600A FRAME, 25KA INTERRUPTING RATING AND GE 9F60 EJO-1, 15.5KV, E-RATED, 15A TRIP/FRAME, 38KA INTERRUPTING RATING) OR EQUIVALENT. LIS SHALL BE CAPABLE OF FEEDING TRANSFORMER FROM EITHER PRIMARY FEEDER I, PRIMARY FEEDER II, OR NEITHER. LIS SHALL NOT ALLOW BOTH FEEDERS TO BE CONNECTED TO TRANSFORMER.
- PROVIDE 2 WEEKS NOTICE IN WRITING TO OWNER OF SHUTDOWN OF BUILDING, OPERATE BUILDING 28 GENERATOR DURING TRANSFORMER REPLACEMENT. REPLACE TRANSFORMER AT SAME TIME AS REPLACEMENT OF BLDG 28 MDP. SEE E6/E-102, MDP AND TR-34 REPLACEMENT SHALL OCCUR OVER A SINGLE WEEKEND PERIOD.
- WHILE TRANSFORMER PAD IS EXPOSED, FILL VOIDS BETWEEN PRIMARY AND SECONDARY CONDUITS WITH CONCRETE.
2. REPLACE TR-47/BLDG 38 TRANSFORMER. REMOVE AND DISPOSE OF EXISTING PAD MOUNTED 300KVA, 13,800A-480Y/277 VOLT TRANSFORMER AND INTERNAL LOAD BREAK SWITCH. PROVIDE A NEW PAD MOUNTED 300KVA, 13,800A-480Y/277 VOLT ONAN TRANSFORMER. DISCONNECT PRIMARY (2/0 AWG, COPPER, 3-1/0, MV, EPR) AND SECONDARY (TWO PARALLEL SETS OF 4#500KCMIL COPPER, THWN) CONDUCTORS FROM EXISTING TRANSFORMER AND RECONNECT TO NEW TRANSFORMER. CONTRACTOR SHALL VERIFY CABLE LENGTHS/HEIGHTS TO EXISTING TRANSFORMER TERMINATIONS AND ORDER NEW TRANSFORMER WITH SAME DIMENSIONS SO EXISTING CABLING IS REUSED (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLING FROM PREVIOUS TERMINATION POINTS).
- PROVIDE LIS (LOAD BREAK SWITCH) INTERNAL TO TRANSFORMER MENTIONED ABOVE. (GE BREAKMASTER LIS - 600A FRAME, 25KA INTERRUPTING RATING AND GE 9F60 EJO-1, 15.5KV, E-RATED, 20A TRIP/FRAME, 50KA INTERRUPTING RATING) OR EQUIVALENT. LIS SHALL BE CAPABLE OF FEEDING TRANSFORMER FROM EITHER PRIMARY FEEDER I, PRIMARY FEEDER II, OR NEITHER. LIS SHALL NOT ALLOW BOTH FEEDERS TO BE CONNECTED TO TRANSFORMER.
- PROVIDE 2 WEEKS NOTICE IN WRITING TO OWNER PRIOR TO SHUTDOWN OF BUILDING, TRANSFORMER SHALL RE PLACED DURING A SINGLE SATURDAY.
- WHILE TRANSFORMER PAD IS EXPOSED, FILL VOIDS BETWEEN PRIMARY AND SECONDARY CONDUITS WITH CONCRETE.
3. AFTER INSTALLATION OF NEW TR-29/BLDG 11 TRANSFORMER, PROVIDE NEW FEEDER FROM J-BOX #3 TO NEW TRANSFORMER TO NEW SERVICE CONDUCTORS AND DISCONNECT TO FEED BLDG 11. ALSO SEE E1/E-102. REMOVE AND DISPOSE OF S&C SWITCH. REMOVE AND DISPOSE OF CONDUCTORS FROM S&C SWITCH TO J-BOX 3 AND FROM S&C SWITCH TO TR-29/BLDG 11. SEE ADDITIONAL INFORMATION E-601.
- RUN GENERATOR #2, 260KW UNIT AT BUILDING 11 DURING DEMOLITION OF S&C SWITCH AND TRANSFORMER TR-29/BLDG 11 AND UNTIL NEW TRANSFORMER AND NEW SERVICE TO BLDG 11 IS IN SERVICE. REFILL FUEL TO FULL LEVEL.
4. REMOVE TREE. FILL HOLE THAT REMAINS WITH BLACK DIRT. PROVIDE GRASS SEED COVER. ALSO SEE E1/E-102.
5. REMOVE AND DISPOSE OF TRANSFORMER TR-29/BLDG 11, PRIMARY AND SECONDARY CONDUCTORS, AND PRIMARY DUCT BANK. CUT AND CAP SECONDARY CONDUITS BELOW GRADE. ALSO SEE E1/E-102.
6. DEMOLISH FEEDER FOR EXISTING TR-29/BLDG 11 THAT PASSES THROUGH MANHOLE 4A. SHALL REMAIN. ALSO SEE E1/E-102.
7. ANY DOWNTIME ASSOCIATED WITH BUILDING 11, SHALL OCCUR WITHIN A PERIOD OF 8 HOURS AND DURING A TIME WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 20°F. ALSO SEE E1/E-102.
8. REPLACE NON-FUSED DISCONNECT SWITCH FEEDING ACCU-2. REMOVE AND DISPOSE OF EXISTING GE HEAVY DUTY NON-FUSED 400A 240V 3P WALL MOUNTED DISCONNECT SWITCH. PROVIDE A NEW HEAVY DUTY FUSED 400A 240V 3P 100KAIC WALL MOUNTED DISCONNECT SWITCH, FUSED AT 400A. DISCONNECT BRANCH CIRCUIT CONDUCTORS FEEDING INTO AND OUT OF DISCONNECT SWITCH AND RECONNECT TO NEW DISCONNECT SWITCH. CONTRACTOR SHALL VERIFY CABLE LENGTHS FOR DISCONNECT TERMINATIONS AND ORDER NEW DISCONNECT WITH SAME DIMENSIONS SO EXISTING CABLING IS REUSED (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLING BETWEEN ACCU-2 AND CIRCUIT BREAKER. CIRCUIT BREAKER IS LOCATED IN BLDG 8 MDP). DISCONNECT SHALL BE REPLACED AFTER 3:00PM.
9. ALTERNATE BID #3 (APPLIES TO ENTIRE SHEET KEYNOTE 9 ONLY): EXISTING BUILDING 50 GENERATOR PARALLELING GEAR LABELED MSG-1.
- PROVIDE OVERRIDE CONTROLS TO RUN BUILDING 50 GENERATORS (THREE 600KW UNITS) EVEN IF INCOMING POWER (UTILITY OR 2MW) IS AVAILABLE AT MSG-1.
- ADD TWO CONTROL SELECTOR SWITCHES ON MSG-1 FOR THIS OVERRIDE. ONE SWITCH SHALL BE A MANUAL OVERRIDE AND THE OTHER SHALL BE AN AUTO/OFF SWITCH WITH THE AUTO BEING IN SERIES WITH AN INPUT FROM THE BMS FROM JOHNSON CONTROLS INC (JCI). ELECTRICAL CONTRACTOR SHALL HIRE JCI TO PERFORM THIS WORK. COORDINATE WITH JCI FOR THIS INPUT FROM THE BMS. PROGRAM THESE SWITCHES INTO THE MSG-1 CONTROL. PROVIDE ALL REPROGRAMMING, RELAYS, SWITCHES, INTERFACING AS NEEDED FOR THE OVERRIDE OF THE BUILDING 50 GENERATORS TO RUN SIMULTANEOUSLY WITH THE CAMPUS 2MW GENERATOR.
- REPAIR THE BUILDING 50, 52-U UTILITY 3000A BREAKER CT CIRCUITS IN MSG-1. VERIFY ALL SENSORS ARE WORKING PROPERLY. REPLACE NON-WORKING SENSORS.
- TEST THE CT CIRCUITRY TO THE SCHWEITZER RELAYS IN MSG-1 TO CONFIRM GENERATOR 3 TRIP LOGIC IS OPERATIONAL. LABEL OUTPUT 105 ON DRAWINGS TO INDICATE TEST TRIP LOGIC TO GENERATOR 3 IF APPROPRIATE.

100% CONSTRUCTION DOCUMENTS

		CONSULTANTS:			ARCHITECT/ENGINEERS:		Drawing Title		Project Title		Project Number		Office of Construction and Facilities Management		
					 TSP, Inc. 1112 N. West Ave. Sioux Falls, SD 57104 phone: (605) 336-1160 fax: (605) 336-7926 www.teamtsp.com TSP PROJECT #04121073 - PRIORITY 1		ELECTRICAL SITE PLAN		Install New Transformers for Buildings 28 and 38		438-13-103				
							Approved Project Director		Location		Building Numbers				
									Sioux Falls, South Dakota		5, 11, 24, 28				
Revisions		Date						Date		Checked		Drawn		Drawing Number	
								12/31/2012		DLB		JWN		ES101 Dwg. 2 of 7	
														Department of Veterans Affairs	

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot
one sixteenth inch = one foot



- SHEET GENERAL NOTES**

A. SEE ES101 FOR ADDITIONAL GENERAL NOTES.
- SHEET KEYNOTES**
 - REPLACE PANEL P8. REMOVE AND DISPOSE OF EXISTING 400A, 208V, 3P, 4W UNI-STRUT MOUNTED PANEL. PROVIDE A NEW 400A, 208V, 3P, 4W 42-SPACE 10KAC PANEL (SEE PANEL SCHEDULE ON SHEET E-501). MOUNT ON EXISTING UNI-STRUT. MODIFY UNI-STRUT AS REQUIRED FOR INSTALLATION OF NEW PANEL. DISCONNECT FEEDER AND BRANCH CIRCUIT CONDUCTORS FEEDING INTO AND OUT OF PANEL AND RECONNECT TO NEW PANEL P8. CONTRACTOR SHALL EXTEND CONDUIT AND CONDUCTORS AS REQUIRED TO NEW PANEL. SEE RISER C3/E-602.

PROVIDE 4 WEEKS NOTICE OF PANEL SHUTDOWN. PANEL SHALL BE REPLACED AFTER 4:00PM DURING THE WEEK OR ON THE WEEKEND.
 - REPLACE CIRCUIT BREAKERS IN PANEL H1. REMOVE AND DISPOSE OF EXISTING CIRCUIT BREAKERS. PROVIDE NEW 18KAC CIRCUIT BREAKERS. SEE PANEL SCHEDULE ON E-501, FOR QUANTITY AND SIZES OF CIRCUIT BREAKERS.

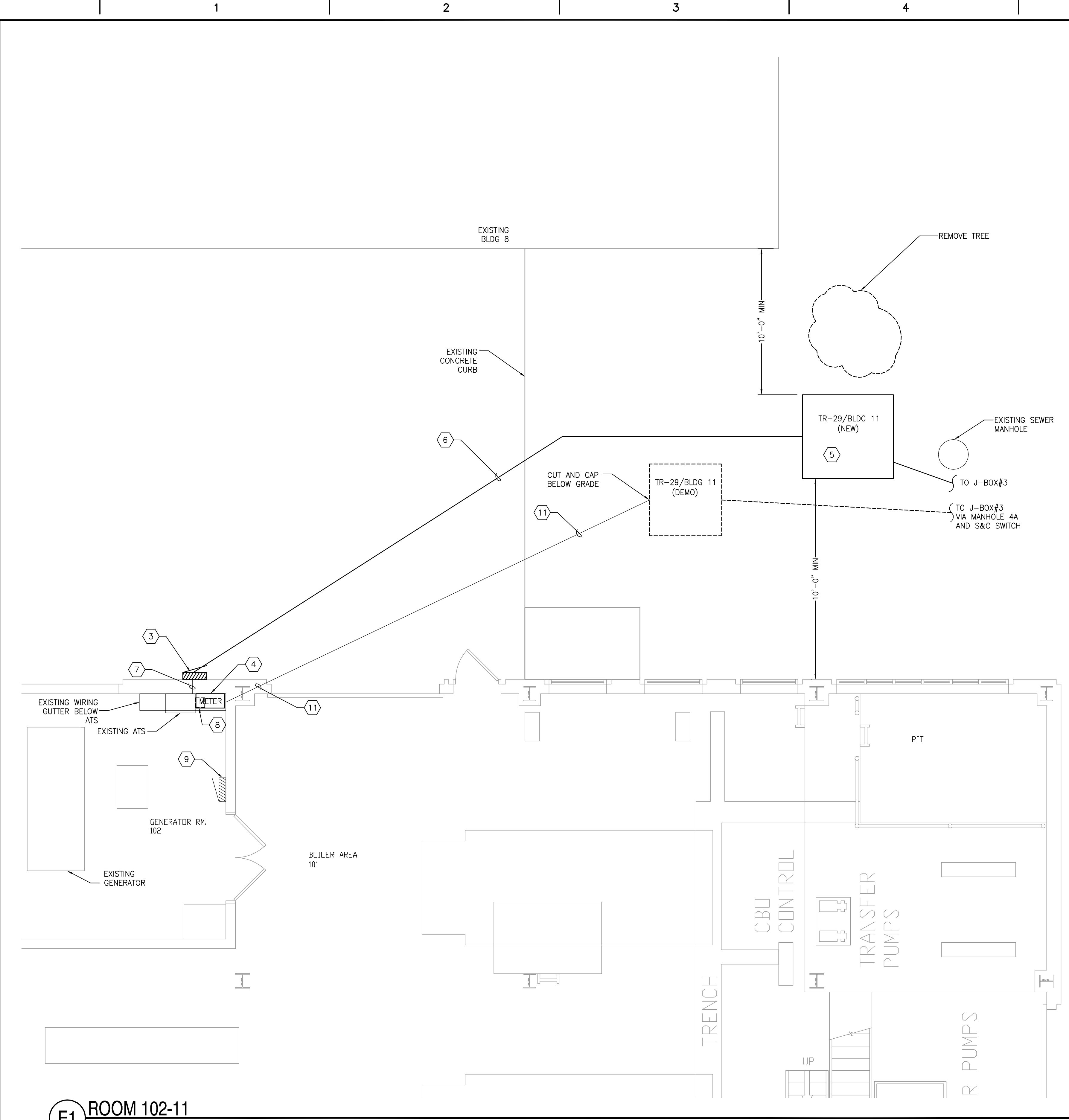
CIRCUIT BREAKERS SHALL BE REPLACED WHEN SYSTEM IS NOT IN COOLING MODE. REPLACE CIRCUIT BREAKERS BETWEEN THE MONTHS OF NOVEMBER-APRIL.
 - REPLACE ATS#1. REMOVE AND DISPOSE OF EXISTING 100A 480V 3P 4W WALL MOUNTED ATS. PROVIDE A NEW 100A, 480V, 3P, 4W WALL MOUNTED ATS. DISCONNECT NORMAL, EMERGENCY, AND LOAD FEEDER CONDUCTORS FEEDING INTO AND OUT OF ATS AND RECONNECT TO NEW ATS. CONTRACTOR SHALL VERIFY CABLE LENGTHS/HEIGHTS TO EXISTING ATS TERMINATIONS AND ORDER NEW ATS WITH SAME DIMENSIONS SO EXISTING CABLING IS REUSED (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLING FROM PREVIOUS TERMINATION POINTS). SEE SUGGESTED SEQUENCING SCHEDULE ON SHEET E-602.
 - PROVIDE 831kW 480V 3P 4W TEMPORARY GENERATOR FOR FIVE (5) 480V, 3P ATS (ATS#1(100A), ATS#2(400A), ATS#3(400A), ATS#7(200A), AND ATS-UPS(400A)). PROVIDE 2 WEEKS NOTICE OF SHUTDOWN OF SWBD AND EACH ATS. CONNECT TEMPORARY GENERATOR PER SUGGESTED SEQUENCE BELOW:
 - PROVIDE POWER AND CONTROL CABLES FROM TEMPORARY GENERATOR TO EACH ATS. PROVIDE LENGTHS AND QUANTITY AS REQUIRED.
 - DISCONNECT FEEDERS AT EACH ATS THAT IS FED FROM SWBD G1 AND CONNECT TEMPORARY GENERATOR CABLES TO EACH ATS. EACH ATS SHALL REMAIN CONNECTED TO EXISTING NORMAL SWBD N1 AND TO EXISTING LOAD FEEDER.
 - AFTER EMERGENCY TERMINALS ON EACH ATS IS FED FROM THE TEMPORARY GENERATOR, DE-ENERGIZE SWBD G1 AND REPLACE.
 - TEMPORARY GENERATOR SHALL BE LOCATED WITHIN BOUNDARY OF EXISTING PARKING STALLS.
 - PROVIDE A TEMPORARY RAMP FOR ACCESS OVER TEMPORARY GENERATOR CABLES. RAMP SHALL HAVE A MAXIMUM PITCH OF 1:20.
 - REPLACE SWBD G1 AND GENERATOR CONTROLLER. DISCONNECT 1200A, 480V, 3P, 4W FLOOR MOUNTED SWBD G1 AND GENERATOR CONTROLLER FROM EXISTING 1200A GENERATOR FEEDER AND ATS FEEDERS. REMOVE IN-SLAB ATS FEEDERS, ATS FEEDERS THAT ARE CURRENTLY FED OVERHEAD SHALL REMAIN FOR REUSE. PROVIDE A NEW 1200A, 480V, 3P, 4W 22KAC PAD MOUNTED SWBD G1 AND GENERATOR CONTROLLER. DISCONNECT FEEDER AND CONDUCTORS FEEDING INTO AND OUT OF SWBD AND GENERATOR CONTROLLER AND RECONNECT TO NEW SWBD G1 AND GENERATOR CONTROLLER. CONNECT NEW SWBD G1 TO NEW 1200A GENERATOR CONTROLLER VIA CABLE CONNECTION. CONTRACTOR SHALL VERIFY CABLE LENGTHS/HEIGHTS TO EXISTING SWBD G1 AND GENERATOR CONTROLLER TERMINATIONS AND ORDER SWBD G1 AND GENERATOR CONTROLLER WITH SAME DIMENSIONS SO EXISTING CABLING IS REUSED, ACCOUNT FOR NEW 4" CONCRETE PAD (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLING FROM PREVIOUS TERMINATION POINTS). UPON COMPLETION OF SWBD G1 AND GENERATOR CONTROLLER INSTALLATION, DISCONNECT TEMPORARY GENERATOR CABLES FROM EACH ATS AND RECONNECT EXISTING OVERHEAD ATS FEEDERS FROM SWBD G1. PROVIDE NEW OVERHEAD ATS FEEDERS PER RISER ON SHEET E-602. SEE SWBD G1 SCHEDULE ON SHEET E-501. SEE PHASING/SEQUENCING ON A4, B4, C4, AND D5 ON SHEET E-602.
 - PROVIDE 2 WEEKS NOTICE OF SHUTDOWN OF SWBD G1. PROVIDE MULTIFUNCTION DIGITAL-METERING MONITOR FOR EACH CIRCUIT BREAKER. SEE SPECIFICATION AND RISER ON E-602.

CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONNECTION POINTS AND INSTALLATION LOCATIONS BETWEEN GENERATOR CONTROLLER AND SWBD G1.

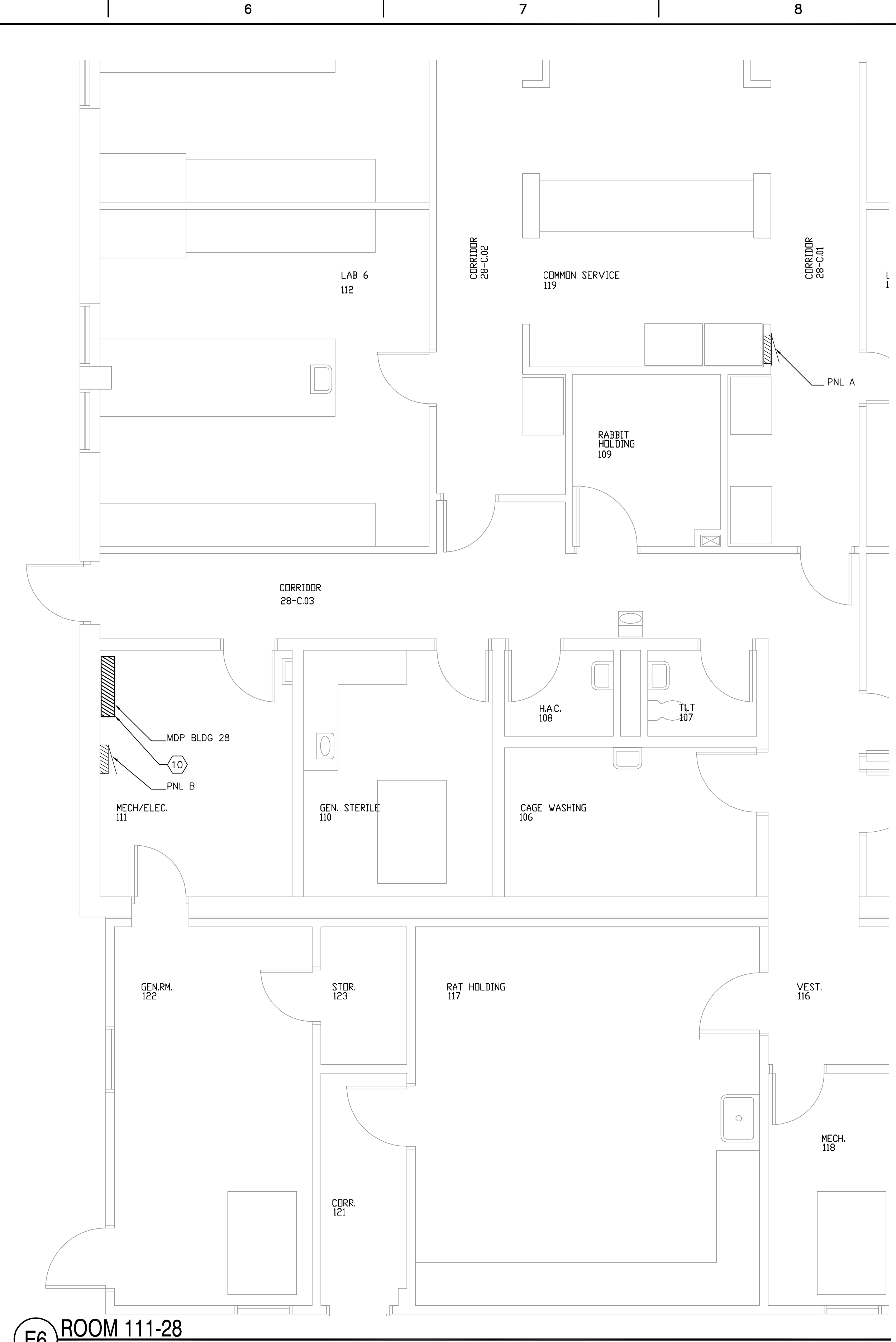
PROVIDE A 4" HIGH CONCRETE EQUIPMENT PAD EXTENDING 2" BEYOND THE FOOTPRINT OF THE EQUIPMENT. VERIFY WITH ACTUAL EQUIPMENT PROVIDED. SCUFF TOP OF EXISTING CONCRETE FLOOR AT LOCATION OF NEW PAD. BOX OUT LOCATION OF EXISTING FEEDER CONDUITS FROM GENERATOR.
 - REMOVE ONE (1) SIDE OF EXISTING EXTERIOR DOOR, PROTECT AND STORE FOR REUSE. ROUTE TEMPORARY CABLES FROM BACKUP GENERATOR THROUGH DOOR OPENING. CONSTRUCT NEW TEMPORARY WALL WITH OPENING FOR TEMPORARY CABLES. REMOVE TEMPORARY WALL AND REINSTALL EXISTING DOOR AFTER NEW SWBD IS IN PLACE AND EACH EXISTING ATS IS CONNECTED TO NEW SWBD G1.
 - REMOVE DOOR, PROTECT AND STORE FOR REUSE. ROUTE CABLES FROM TEMPORARY GENERATOR THROUGH DOOR OPENING TO EACH ATS. REINSTALL EXISTING DOOR AFTER NEW SWBD IS IN PLACE AND EACH EXISTING ATS IS CONNECTED TO NEW SWBD G1.
 - PROVIDE A 208V, 1PH, 30A CIRCUIT FROM PNL QL1 TO TEMPORARY GENERATOR FOR JACKET HEATER AND BATTERY CHARGER.
 - PROVIDE (2) #14 AWG CONDUCTORS FROM ATS#7 FOR TEMPORARY GENERATOR START CIRCUIT. PROVIDE ADDITIONAL COMPONENTS IN ATS AS REQUIRED FOR START CIRCUIT.
 - PROVIDE NEW OIL PRESSURE, WATER TEMP, AND SPEED SENSORS IN EXISTING GENERATOR AS REQUIRED FOR REPLACEMENT OF GENERATOR CONTROLLER. PROVIDE NEW CONTROL WIRING BETWEEN GENERATOR AND GENERATOR CONTROLLER AS REQUIRED.
 - DISCONNECT VEEDER-ROOT TLS-350 UST MONITORING SYSTEM AND EMERGENCY GENERATOR SHUTDOWN SWITCH. PROVIDE TEMPORARY SUPPORT FOR MONITORING SYSTEM AND EMERGENCY SHUTDOWN SWITCH. INSTALL EXISTING MONITORING SYSTEM AND EMERGENCY GENERATOR SHUTDOWN SWITCH ON NEW GENERATOR CONTROLLER.
 - CORE DRILL THROUGH EXISTING CMU WALL FOR NEW OVERHEAD ATS FEEDERS. PROVIDE 2HR FIRE RATING SEAL OF WALL.
 - REPLACE ATS-UPS. REMOVE AND DISPOSE OF EXISTING 400A 480V 3P 4W WALL MOUNTED ATS. PROVIDE A NEW 400A, 480V, 3P, 4W WALL MOUNTED ATS. DISCONNECT NORMAL, EMERGENCY, AND LOAD FEEDER CONDUCTORS FEEDING INTO AND OUT OF ATS AND RECONNECT TO NEW ATS. CONTRACTOR SHALL VERIFY CABLE LENGTHS/HEIGHTS TO EXISTING ATS TERMINATIONS AND ORDER NEW ATS WITH SAME DIMENSIONS SO EXISTING CABLING IS REUSED (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLING FROM PREVIOUS TERMINATION POINTS). SEE SUGGESTED SEQUENCING SCHEDULE ON SHEET E-602.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

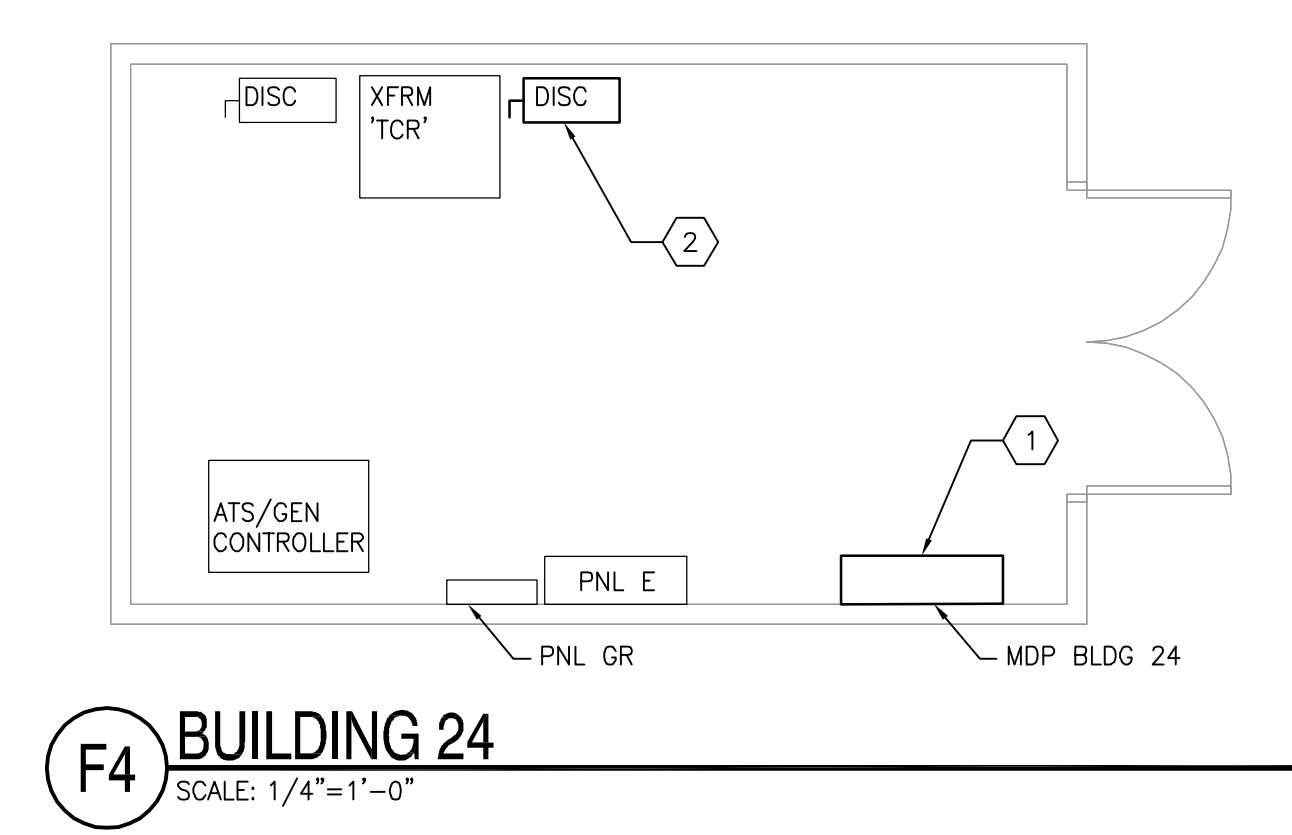
three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot
one eighth inch = one foot



E1 ROOM 102-11
SCALE: 1/4"=1'-0"



E6 ROOM 111-28
SCALE: 1/4"=1'-0"



F4 BUILDING 24
SCALE: 1/4"=1'-0"

SHEET GENERAL NOTES

A. SEE ES101 FOR ADDITIONAL GENERAL SHEET NOTES.

SHEET KEYNOTES

1. REPLACE MDP. REMOVE AND DISPOSE OF EXISTING 800A, 208V, 3P, 4W WALL MOUNTED MDP. REMOVE AND DISPOSE OF METER. PROVIDE A NEW SERVICE ENTRANCE RATED 800A, 208V, 3P, 4W 22KAC WALL MOUNTED MDP. SEE SCHEDULE ON SHEET E-501. DISCONNECT FEEDER AND (2) BRANCH CIRCUITS FEEDING INTO AND OUT OF MDP AND CONNECT TO NEW MDP. CONTRACTOR SHALL EXTEND CONDUIT AND CONDUCTORS AS REQUIRED TO NEW MDP. PROVIDE MULTIFUNCTION DIGITAL-METERING MONITOR FOR MAIN CIRCUIT BREAKER. SEE RISER.

RUN GENERATOR AT BLDG 50 DURING CONSTRUCTION. SWITCH OVER ATS SO THAT DIST PNL E IS FED VIA BLDG 50 GENERATOR. SEE RISER. REFILL FUEL TO FULL LEVEL.

PROVIDE 2 WEEKS NOTICE FOR SHUTDOWN OF MDP. MDP SHALL BE REPLACED AFTER 4PM ON A FRIDAY.

ALTERNATE BID #1: INTERCONNECT DIGITAL-METERING MONITOR WITH CAMPUS METASYS. PROVIDE CABLEING TO CAMPUS NETWORK TO INTERFACE WITH METASYS AS REQUIRED. ELECTRICAL CONTRACTOR SHALL HIRE JCI TO PERFORM THE INTERCONNECTION WORK AND COORDINATE WHERE NETWORK CABLEING NEEDS TO TERMINATE. SEE SPECIFICATION 262411.

2. AFTER REPLACEMENT OF MDP IS COMPLETED, REMOVE AND DISPOSE OF EXISTING 400A, 480V, 3P, NON-FUSED WALL MOUNTED DISCONNECT SWITCH THAT FEEDS TRANSFORMER 'TCR'. PROVIDE A NEW 400A, 480V, 3P, FUSED 100KAC WALL MOUNTED DISCONNECT SWITCH. DISCONNECT LINE AND LOAD FEEDER FROM DEMOLISHED DISCONNECT SWITCH AND CONNECT TO NEW DISCONNECT SWITCH. CONTRACTOR SHALL VERIFY CABLE LENGTHS/HEIGHTS TO EXISTING DISCONNECT SWITCH TERMINATIONS AND ORDER NEW DISCONNECT SWITCH WITH SAME DIMENSIONS SO EXISTING CABLEING IS REUSED (OTHERWISE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW CABLEING FROM PREVIOUS TERMINATION POINTS). ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW COORDINATION STUDY AND ENSURING PROPER COORDINATION BETWEEN FUSED DISCONNECT AND PANEL E CIRCUIT BREAKERS. CONTACT TSP ARCHITECTS AND ENGINEERS FOR EXISTING COORDINATION STUDY.

3. PROVIDE A 350A, 480V, 3P, 4W, 10KAC NEMA 3R EXTERIOR WALL MOUNTED SERVICE ENTRANCE RATED MAIN CIRCUIT BREAKER.

ALTERNATE BID #2: INTERCONNECT DIGITAL-METERING MONITOR WITH CAMPUS METASYS. PROVIDE CABLEING TO CAMPUS NETWORK TO INTERFACE WITH METASYS AS REQUIRED. ELECTRICAL CONTRACTOR SHALL HIRE JCI TO PERFORM THE INTERCONNECTION WORK AND COORDINATE WHERE NETWORK CABLEING NEEDS TO TERMINATE. SEE SPECIFICATION 262411.

4. PROVIDE A MULTI-FUNCTION DIGITAL METER INSTALLED AT LOCATION SHOWN FOR BLDG 11 MAIN CIRCUIT BREAKER METERING. PROVIDE A 20A, 3PH, 480V CONNECTION FROM MDP. PROVIDE INTEGRATORS AS REQUIRED FOR USE WITH BACNET OVER IP PROTOCOL.

5. PROVIDE A NEW PAD MOUNTED 300KVA, 13,800V-480Y/277 VOLT ONAN TRANSFORMER. PROVIDE 2 SETS OF (2) 0 AWG, COPPER, 3-1/2" C, MW, ERP) FROM J-BOX #3 TO TRANSFORMER TR-29/BLDG 11. 1 SET SHALL BE FOR EACH CAMPUS FEEDER. SEE ES101 FOR LOCATION OF J-BOX #3. INSTALL PRIMARY CONDUITS IN A 2-WAY DUCT BANK CONFIGURATION. SEE DETAIL F2/E-602.

PROVIDE NEW TRANSFORMER PAD. SEE DETAIL F4/E-602.

PROVIDE NEW LIS (LOAD BREAK SWITCH) INTERNAL TO TRANSFORMER MENTIONED ABOVE. (GE BREAKMASTER LIS - 600A FRAME, 25KA INTERRUPTING RATING AND GE 9F62 EJO-1, 15.5KV, E-RATED, 20A TRIP/FRAME, 50KA INTERRUPTING RATING) OR EQUIVALENT. LIS SHALL BE INSTALLED ON PRIMARY SIDE OF TRANSFORMER. LIS SHALL BE CAPABLE OF FEEDING TRANSFORMER FROM EITHER PRIMARY FEEDER I, PRIMARY FEEDER II, OR NEITHER. LIS SHALL NOT ALLOW BOTH FEEDERS TO BE CONNECTED TO TRANSFORMER.

6. PROVIDE NEW SECONDARY FEEDER TO NEW WALL MOUNTED MAIN CIRCUIT BREAKER. SEE ES101 FOR ADDITIONAL INFORMATION. BORE UNDER CONCRETE AS REQUIRED FOR INSTALLATION OF NEW FEEDER. SEE SHEET E-601 FOR ADDITIONAL INFORMATION.

7. PROVIDE LB FROM WALL MOUNTED MAIN CIRCUIT BREAKER INTO BACK OF EXISTING WIRING GUTTER IN BLDG 11. GENERATOR ROOM. CORE DRILL THROUGH EXISTING EXTERIOR WALL AS REQUIRED. SEAL EXTERIOR WALL PENETRATIONS.

8. REMOVE EXISTING METER AND ASSOCIATED CT'S. PROVIDE NEW CT'S ON NORMAL FEEDER CONDUCTORS WITHIN EXISTING ATS. EXISTING METER IS MOUNTED ON SIDE OF EXISTING ATS.

9. PROVIDE A 20A-3P CIRCUIT BREAKER IN EXISTING PANEL FOR METERING. PROVIDE 3#12 AWG + 1#12 GRND, 1/2" C FROM MDP TO METER. EXISTING PANEL IS MANUFACTURED BY GE, MATCH EXISTING AIC RATING.

10. REPLACE MDP. REMOVE AND DISPOSE OF EXISTING 400A, 208V, 3P, 4W WALL MOUNTED MDP. PROVIDE A NEW SERVICE ENTRANCE RATED 400A, 208V, 3P, 4W 22KAC WALL MOUNTED MDP. DISCONNECT FEEDER AND BRANCH CIRCUITS FEEDING INTO AND OUT OF MDP AND CONNECT TO NEW MDP. CONTRACTOR SHALL EXTEND CONDUIT AND CONDUCTORS AS REQUIRED TO NEW MDP. CONNECT NEW MDP INTO EXISTING SQUARE D POWER LOGIC METERING SYSTEM. INTERFACE SQUARE D POWER LOGIC WITH BUILDING 28 METASYS SYSTEM. ELECTRICAL CONTRACTOR SHALL HIRE JCI TO PERFORM THE INTERFACE WORK. SEE RISER E2/E-602 FOR ADDITIONAL INFORMATION.

RUN GENERATOR AT BLDG 28 DURING CONSTRUCTION. SWITCH OVER ATS SO THAT PNLS 28-E1 AND 28-E2 ARE FED VIA BLDG 28 GENERATOR. SEE RISER. REFILL FUEL TO FULL LEVEL. REPLACE MDP AT SAME TIME AS TRANSFORMER TR-34/BLDG 28 IS REPLACED. REPLACEMENT OF MDP AND TRANSFORMER SHALL OCCUR OVER A SINGLE WEEKEND PERIOD.

11. PROVIDE TAG ON END OF CONDUIT. TAG SHALL STATE: "ABANDONED". NOTE ON AS-BUILTS THAT CONDUIT IS ABANDONED.

100% CONSTRUCTION DOCUMENTS

Project Number 438-13-103		Office of Construction and Facilities Management	
Building Numbers 5, 11, 24, 28			
Drawing Number E-102		Department of Veterans Affairs	
Dwg 4 of 7			

Drawing Title ELECTRICAL PLANS - BUILDINGS 11, 24, 28		Project Title Install New Transformers for Buildings 28 and 38	
Approved: Project Director		Location Sioux Falls, South Dakota	
		Date 12/31/2012	Checked DLB
		Drawn JWN	

Revisions	Date	CONSULTANTS:	<div><div>REGISTERED PROFESSIONAL ENGINEER REG. NO. 6729 DARRELL L. BREN DATE: 12/31/12</div><div><div>TSP</div><div>TSP, Inc. 1112 N. West Ave. Sioux Falls, SD 57104 phone: (605) 336-1160 fax: (605) 336-7926 www.teamtsp.com TSP PROJECT #04121073 - PRIORITY 1</div></div></div>	ARCHITECT/ENGINEERS:	<div><div>Drawing Title ELECTRICAL PLANS - BUILDINGS 11, 24, 28</div><div>Approved: Project Director</div></div>	<div><div>Drawing Title ELECTRICAL PLANS - BUILDINGS 11, 24, 28</div><div>Approved: Project Director</div></div>	<div><div>Project Title Install New Transformers for Buildings 28 and 38</div><div>Location Sioux Falls, South Dakota</div><div>Date 12/31/2012</div><div>Checked DLB</div><div>Drawn JWN</div></div>	<div><div>Project Number 438-13-103</div><div>Building Numbers 5, 11, 24, 28</div><div>Drawing Number E-102</div><div>Dwg 4 of 7</div></div>	<div><div>Office of Construction and Facilities Management</div><div>Department of Veterans Affairs</div></div>
-----------	------	--------------	---	----------------------	--	--	---	--	---

VA FORM 08-6231

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one eighth inch = one foot

PANEL TAG: PNL P8 BLDG 5									
MOUNTING: UNI-STRUT									
FEEDER: (SEE RISER DIAGRAM)									
PANEL TYPE: LTG & APPLIANCE									
VOLTAGE: 120/208 VAC, 3-PHASE, 4-WIRE									
MAINS: LUG [] C.B. [X] AMPS: 400									
FEED THRU LUG []									
MIN A.I.C.: 10k (A)									
CKT	ITEM OR AREA SERVED	O/C	DIST	P	DIST	O/C	ITEM OR AREA SERVED	CKT	
1	ELEV INTERCOM	20/1	0.0	A	0.0	30/3	MED VAC	2	
3	120 LABEL	20/1	0.0	C	0.0	—	—	4	
5	RADIO OUTLETS	20/1	0.0	C	0.0	—	—	6	
7	SURGERY MED AIR	30/3	0.0	A	0.0	30/3	SURG ERY EXHAUST	8	
9	—	—	0.0	B	0.0	—	—	10	
11	—	—	0.0	C	0.0	—	—	12	
13	BLDG CONTROL AIR	30/3	0.0	A	0.0	30/3	EF-5	14	
15	—	—	0.0	B	0.0	—	—	16	
17	—	—	0.0	C	0.0	—	—	18	
19	SPACE	—	0.0	A	0.0	100/3	ELEVATOR XFRM	20	
21	SPACE	—	0.0	B	0.0	—	—	22	
23	SPACE	—	0.0	C	0.0	—	—	24	
25	SPACE	—	0.0	A	0.0	—	—	26	
27	SPACE	—	0.0	B	0.0	—	—	28	
29	SPACE	—	0.0	C	0.0	—	—	30	
31	CAR RECEPTACLE	20/1	0.0	A	0.0	—	—	32	
33	S1 CAB LT	20/1	0.0	B	0.0	—	—	34	
35	ELEV CAR 1 RECEPT	20/1	0.0	C	0.0	—	—	36	
37	ELEV CAR 3 RECEPT	20/1	0.0	A	0.0	—	—	38	
39	SPACE	—	0.0	B	0.0	—	—	40	
41	SPACE	—	0.0	C	0.0	—	—	42	

PANEL TAG: SWBD G1 BLDG 5									
MOUNTING: FLOOR									
PANEL TYPE: DISTRIBUTION									
VOLTAGE: 277/480 VOLTS, 3-PHASE, 4-WIRE									
MAIN BUS RATING AMPS: 1200									
MIN A.I.C.: 50k (A)									
CKT	ITEM OR AREA SERVED	DIST	KVA	CIRCUIT BREAKER	FRAME SIZE	# POLES	TRIP SETTING	REMARKS	
MAIN	MLO	0.0	—	N/A	N/A	N/A	—	INPUT LUGS SECTION	
1	EQUIPMENT BRANCH	0.0	—	(VERTICAL BARRIER)	—	—	—	SECTION: EQ PROVIDE VERTICAL BARRIES AND METERING OF EACH BRANCH BREAKER FOR THIS SECTION	
1A	ATS-3 (EO) GFI PROTECTION	0.0	400	3	400	—	—		
1B	ATS-UPS (EO) GFI PROTECTION	0.0	400	3	400	—	—		
1C	ATS-2 (CR) GFI PROTECTION	0.0	400	3	400	—	—		
1D	SPACE	0.0	200	3	—	—	—		
2	EMERGENCY BRANCH	0.0	—	(VERTICAL BARRIER)	—	—	—	SECTION: EM PROVIDE VERTICAL BARRIES AND METERING OF EACH BRANCH BREAKER FOR THIS SECTION	
2A	ATS-7 (CR) GFI PROTECTION	0.0	200	3	200	—	—		
2B	ATS-1 (LS) GFI PROTECTION	0.0	100	3	100	—	—		
2C	SPACE	0.0	200	3	—	—	—		
TOTAL CONNECTED LOAD (KVA)		0.0							
TOTAL DEMAND LOAD (KVA)		0.0							
FEEDER AMPERES DEMAND		0.0							

PANEL TAG: PNL H1 5									
MOUNTING: EXISTING									
FEEDER: (SEE RISER DIAGRAM)									
PANEL TYPE: LTG & APPLIANCE									
VOLTAGE: 277/480 VAC, 3-PHASE, 4-WIRE									
MAINS: LUG [X] C.B. [] AMPS: 225									
FEED THRU LUG []									
MIN A.I.C.: 25k (A)									
CKT	ITEM OR AREA SERVED	O/C	DIST	P	DIST	O/C	ITEM OR AREA SERVED	CKT	
1	XFRM + PNL PB1	20/3	0.0	A	0.0	30/3	EXISTING OZONE	2	
3	—	—	0.0	B	0.0	—	—	4	
5	—	—	0.0	C	0.0	—	—	6	
7	BASIN HEAT CT1	30/3	0.0	A	0.0	30/3	CHILLER GAS HTR	8	
9	—	—	0.0	B	0.0	—	—	10	
11	—	—	0.0	C	0.0	—	—	12	
13	BASIN HEAT CT2	20/3	0.0	A	0.0	60/3	CT2 NEW TOWER	14	
15	—	—	0.0	B	0.0	—	—	16	
17	—	—	0.0	C	0.0	—	—	18	
19	RTU	15/3	0.0	A	0.0	30/2	NEW YORK PRESSURE	20	
21	—	—	0.0	B	0.0	—	—	22	
23	—	—	0.0	C	0.0	—	—	24	
25	SPACE	—	0.0	A	0.0	—	—	26	
27	SPACE	—	0.0	B	0.0	—	—	28	
29	SPACE	—	0.0	C	0.0	—	—	30	
31	SPACE	—	0.0	A	0.0	—	—	32	
33	SPACE	—	0.0	B	0.0	—	—	34	
35	SPACE	—	0.0	C	0.0	—	—	36	
37	SPACE	—	0.0	A	0.0	—	—	38	
39	SPACE	—	0.0	B	0.0	—	—	40	
41	SPACE	—	0.0	C	0.0	—	—	42	

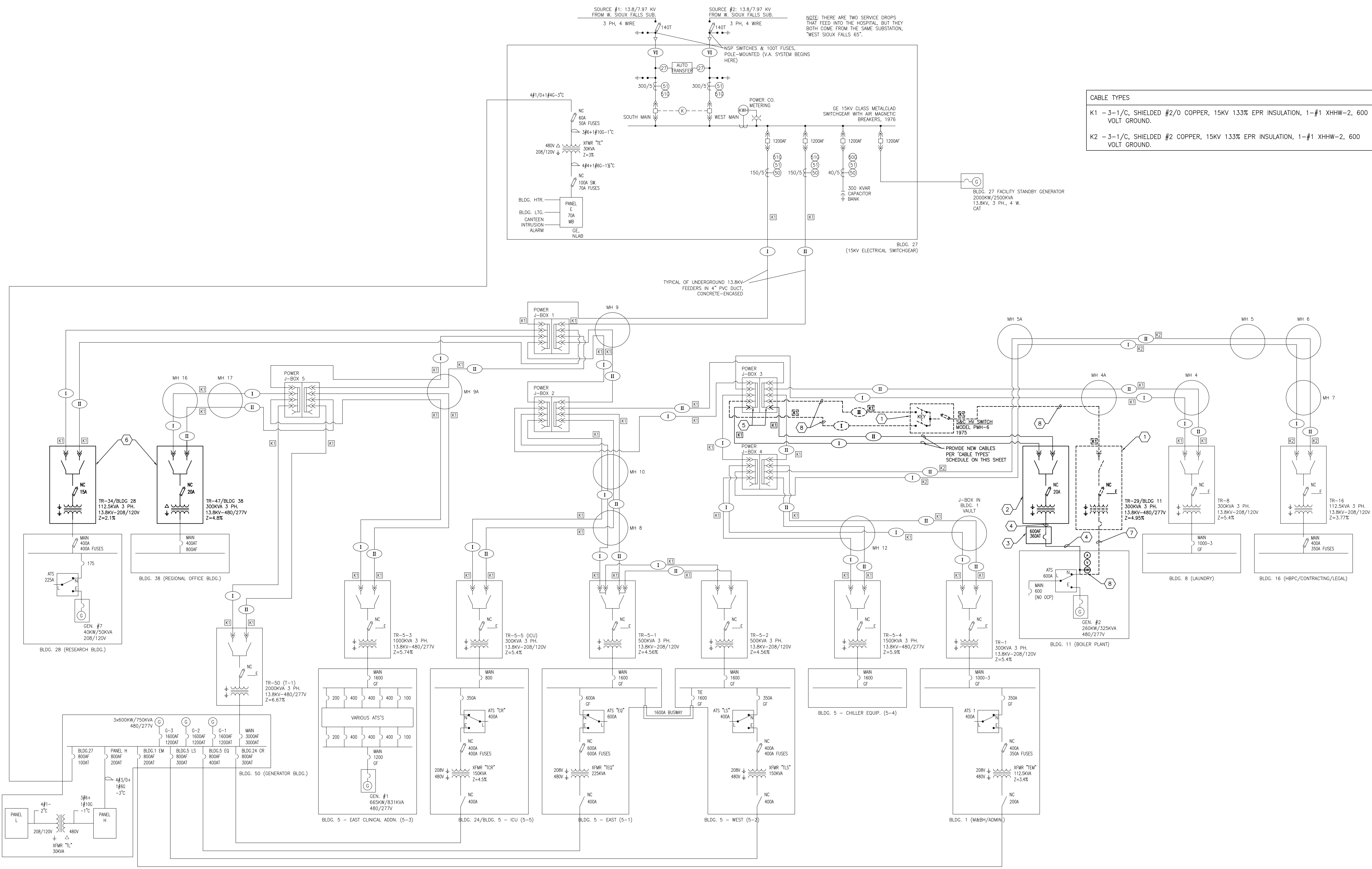
PANEL TAG: MDP 5 BLDG 24									
MOUNTING: WALL									
PANEL TYPE: DISTRIBUTION									
VOLTAGE: 120/208 VOLTS, 3-PHASE, 4-WIRE									
MAIN BUS RATING AMPS: 800									
MIN A.I.C.: 22k (A)									
CKT	ITEM OR AREA SERVED	DIST	KVA	CIRCUIT BREAKER	FRAME SIZE	# POLES	TRIP SETTING	REMARKS	
MAIN	800	0.0	800	3	800	—	—		
1	DIST PNL SL	0.0	400	3	400	—	—	GROUND FAULT	
2	ATS (CR)	0.0	400	3	350	—	—	GROUND FAULT	
3	SPACE	0.0	400	4	—	—	—		
TOTAL CONNECTED LOAD (KVA)		0.0							
TOTAL DEMAND LOAD (KVA)		0.0							
FEEDER AMPERES DEMAND		0.0							

PANEL TAG: PNL SL BLDG 5									
MOUNTING: EXISTING									
PANEL TYPE: DISTRIBUTION									
VOLTAGE: 120/208 VOLTS, 3-PHASE, 4-WIRE									
MAIN BUS RATING AMPS: 400									
MIN A.I.C.: EXISTING									
CKT	ITEM OR AREA SERVED	DIST	KVA	CIRCUIT BREAKER	FRAME SIZE	# POLES	TRIP SETTING	REMARKS	
MAIN	—	0.0	—	—	—	—	—		
1	UNIT HEATER	0.0	20	1	20	—	—		
2	WP RECEPTACLE	0.0	20	1	20	—	—		
3	SPARE	0.0	20	1	20	—	—		
4	CONTROL CKT	0.0	20	1	20	—	—		
5	SPARE	0.0	20	1	20	—	—		
6	CONTROL CKT AHU #18	0.0	20	1	20	—	—		
7	SPARE	0.0	20	3	20	—	—		
8	SPARE	0.0	20	3	20	—	—		
9	ATTIC EXHAUST	0.0	20	3	20	—	—		
10	CHILLED WATER PUMP 1 & 2	0.0	30	3	30	—	—		
11	ENDOSCOPY AIR COMP	0.0	20	2	20	—	—		
12	HEAT RECOVERY PUMP AHU 18 & 19	0.0	40	3	40	—	—		
13	CHILLER STEP-UP XFRM	0.0	350	3	350	—	—		

PANEL TAG: MDP BLDG 28									
MOUNTING: SURFACE									
PANEL TYPE: DISTRIBUTION									
VOLTAGE: 120/208 VOLTS, 3-PHASE, 4-WIRE									
MAIN BUS RATING AMPS: 400									
MIN A.I.C.: 22k (A)									
CKT	ITEM OR AREA SERVED	DIST	KVA	CIRCUIT BREAKER	FRAME SIZE	# POLES	TRIP SETTING	REMARKS	
MAIN	—	0.0	400	3	400	—	—		
1	LAA COND UNIT, AHU, CIRC PUMP	0.0	60	3	60	—	—		
2	RTU-1	0.0	125	3	125	—	—		
3	SPARE	0.0	80	3	80	—	—		
4	PNL B	0.0	200	3	200	—	—		
5	PNL A	0.0	100	3	100	—	—		
6	ATS BLDG 28 - PNL E-1	0.0	175	3	175	—	—		
7	REC SHELTER 'OFF'	0.0	100	3	100	—	—		
8	HRU-1	0.0	90	3	90	—	—		
9	KWH METER	0.0	30	3	30	—	—		
10	EXISTING LOAD	0.0	125	3	125	—	—		
11	SPARE	0.0	50	3	50	—	—		
12	SPACE	0.0	—	—	—	—	—		
13	SPACE	0.0	—	—	—	—	—		
14	SPACE	0.0	—	—	—	—	—		
15	SPACE	0.0	—	—	—	—	—		
16	SPACE	0.0	—	—	—	—	—		
17	SPACE	0.0	—	—	—	—	—		
18	SPACE	0.0	—	—	—	—	—		
19	SPACE	0.0	—	—	—	—	—		
20	SPACE	0.0	—	—	—	—	—		
TOTAL CONNECTED LOAD (KVA)		0.0							
TOTAL DEMAND LOAD (KVA)		0.0							
FEEDER AMPERES DEMAND		0.0							

PANEL TAG: PNL A BLDG 28										VOLTAGE: 120/208 VAC, 3-PHASE, 4-WIRE									
MOUNTING: EXISTING										MINS: LUG [] C.B. [] AMPS: 225									
FEEDER: (SEE RISER DIAGRAM)										FEED THRU LUG []									
PANEL TYPE: LIT & APPLIANCE										MIN A.I.C.: EXISTING (A)									
CKT	ITEM OR AREA SERVED				O/C	DIST	KVA	P	VOLTS	O/C	ITEM OR AREA SERVED				CKT				
1	LAB LIT 103				20/1	0.0	A	0.0	20/1	CORR LIT					2				
2	OFFICE LUG				20/1	0.0	B	0.0	20/1	LAB #1 RM 104					4				
3	COMMON SERVICE PLUG MOLD				20/1	0.0	A	0.0	20/1	LAB #2 RM 105					4				
4	OFFICE REC 101, 102A				20/1	0.0	A	0.0	20/1	LAB #1 RECEPT 103, 104					8				
5	OFFICE & LAB #1 RECEPT				20/1	0.0	B	0.0	20/1	LAB #1 #2 RECEPT					10				
6	OFFICE & LAB #1 RECEPT				20/1	0.0	C	0.0	20/1	LAB #1 #2 RECEPT					12				
13	LAB #3 104, 105 & FLUME HOOD				20/1	0.0	A	0.0	20/1	STORAGE RECEPT 115 HOOD					14				
14	LAB #3 RECEPT				20/1	0.0	A	0.0	20/1	STORAGE RECEPT 115 HOOD					16				
17	COMMON SERVICE PLUG MOLD				20/1	0.0	C	0.0	20/1	114 E. HOOD					18				
19	COMMON SERVICE 4Plex				20/1	0.0	A	0.0	30/2	LAB PWR 208V					20				
21	COMMON SERVICE RECEPT E				20/1	0.0	B	0.0	-	-					22				
23	RECEPTS				30/2	0.0	C	0.0	20/1	104 E. WALL					24				
24	RECEPTS				25	0.0	B	0.0	20/2	115 E. WALL					26				
27	RECEPTS 102				20/1	0.0	B	0.0	20/2	INCUBATOR 114					28				
29	E. CORRIDOR RECEPT				20/1	0.0	C	0.0	-	-					30				
31	DUPLEX RECEPT				20/1	0.0	A	0.0	30/2	101B N. WEST CORNER					32				
33	SPACE				0.0	0.0	B	0.0	-	-					34				
35	S. WALL 208V 105				30/2	0.0	C	0.0	20/1	101A S. WALL RECEPT					36				
39	RECEPT 114				30/2	0.0	A	0.0	20/1	114 S. WALL E					40				
41					-	0.0	C	0.0	20/1	JORDAN REFRIG					42				
					-	0.0	C	0.0	20/1	NORLAK REFRIG W. CORR.					42				

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one eighth inch = one foot
one quarter inch = one foot
one eighth inch = one foot



F1 EXISTING DISTRIBUTION RISER DIAGRAM
SCALE: NO SCALE

SHEET GENERAL NOTES

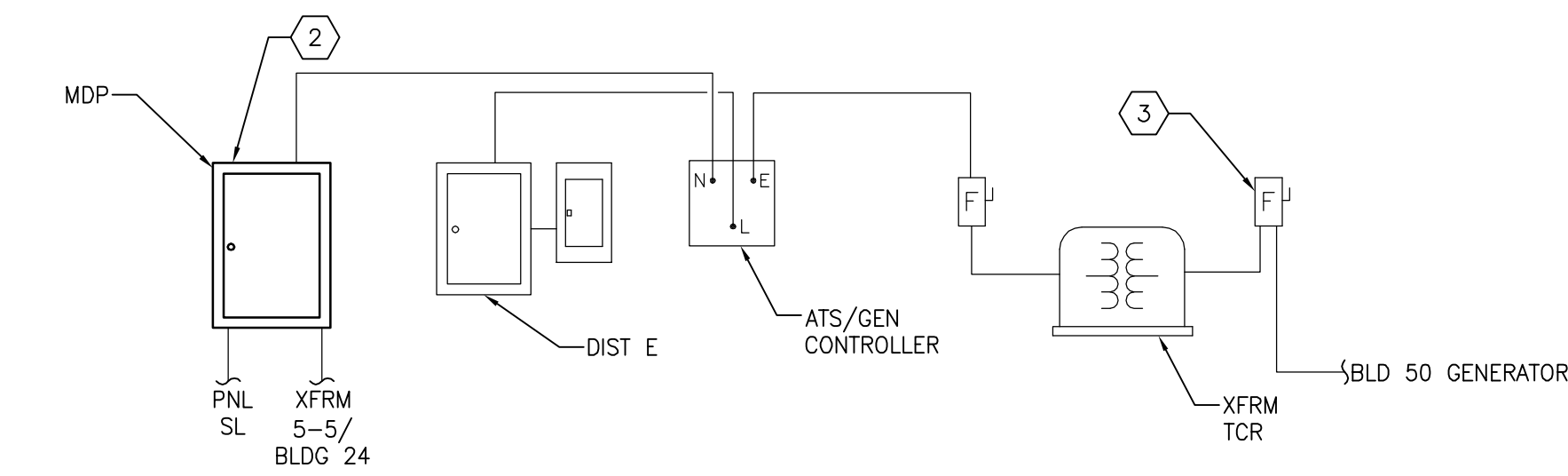
A. SEE ES101 FOR ADDITIONAL GENERAL NOTES.

SHEET KEYNOTES

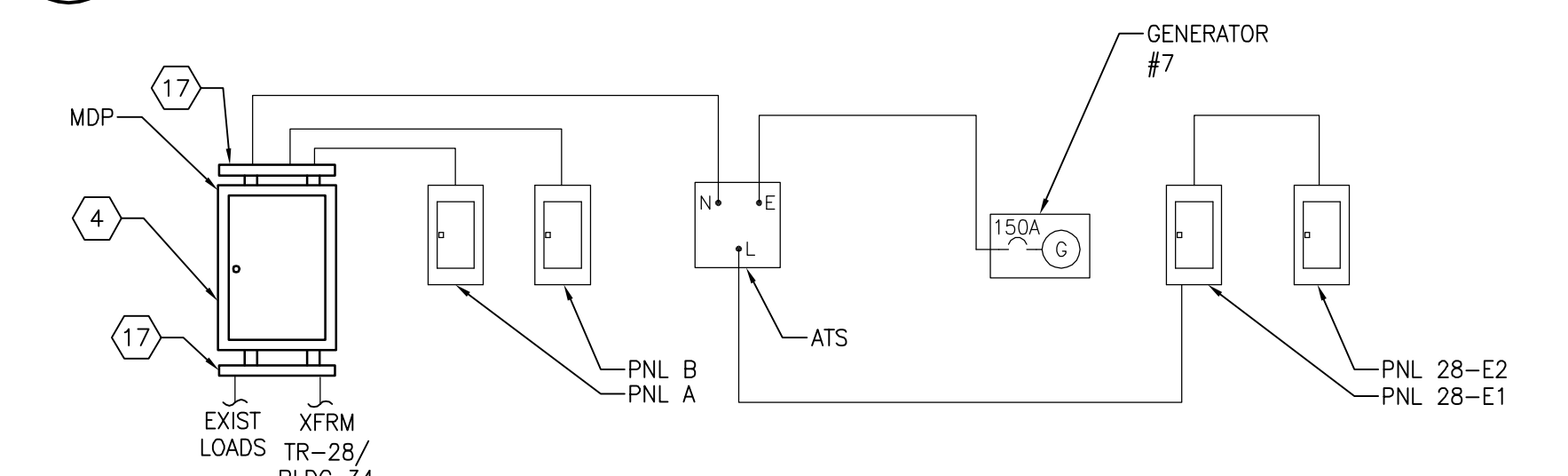
1. REMOVE AND DISPOSE OF TRANSFORMER TR-29/BLDG 11 AND S&C SWITCH.
2. PROVIDE NEW PAD MOUNTED TRANSFORMER TR-29/BLDG 11. INSTALL PAD, TRANSFORMER, PRIMARY AND SECONDARY FEEDERS PRIOR TO DEMOLITION OF EXISTING TRANSFORMER TR-11/BLDG 29 AND S&C SWITCH. SEE ES101 AND E-102 FOR ADDITIONAL INFORMATION.
3. PROVIDE NEW EXTERIOR SERVICE ENTRANCE RATED MAIN CIRCUIT BREAKER WITH METER. INSTALL CIRCUIT BREAKER AND FEEDER PRIOR TO DEMOLITION OF EXISTING TRANSFORMER TR-29/BLDG 11 AND S&C SWITCH. SEE ES101 AND E-102 FOR ADDITIONAL INFORMATION.
4. PROVIDE 2 SETS OF (4) #350KCMIL + (1) #2/0 AWG GND, 4".
5. CONNECT NEW PRIMARY FEEDERS FROM EXISTING JUNCTION BOX #3 TO TR-29. INSTALL FEEDERS PRIOR TO DEMOLITION OF EXISTING TRANSFORMER TR-29/BLDG 11 AND S&C SWITCH. SEE ES101 AND E-102FOR ADDITIONAL INFORMATION.
6. REPLACE TRANSFORMER. SEE ES101 AND E-102 FOR ADDITIONAL INFORMATION.
7. REMOVE EXISTING SECONDARY CONDUCTORS. CONDUIT SHALL REMAIN. CUT, CAP, AND LABEL CONDUIT BELOW GRADE.
8. REMOVE PRIMARY CONDUIT, CONDUCTORS, AND DUCT BANK IN ITS ENTIRETY. (EXCEPT BELOW CONCRETE DRIVE).
9. PROVIDE MULTI-FUNCTION DIGITAL METERING MONITOR FOR BLDG 11. SEE E-102 FOR ADDITIONAL INFORMATION.

100% CONSTRUCTION DOCUMENTS

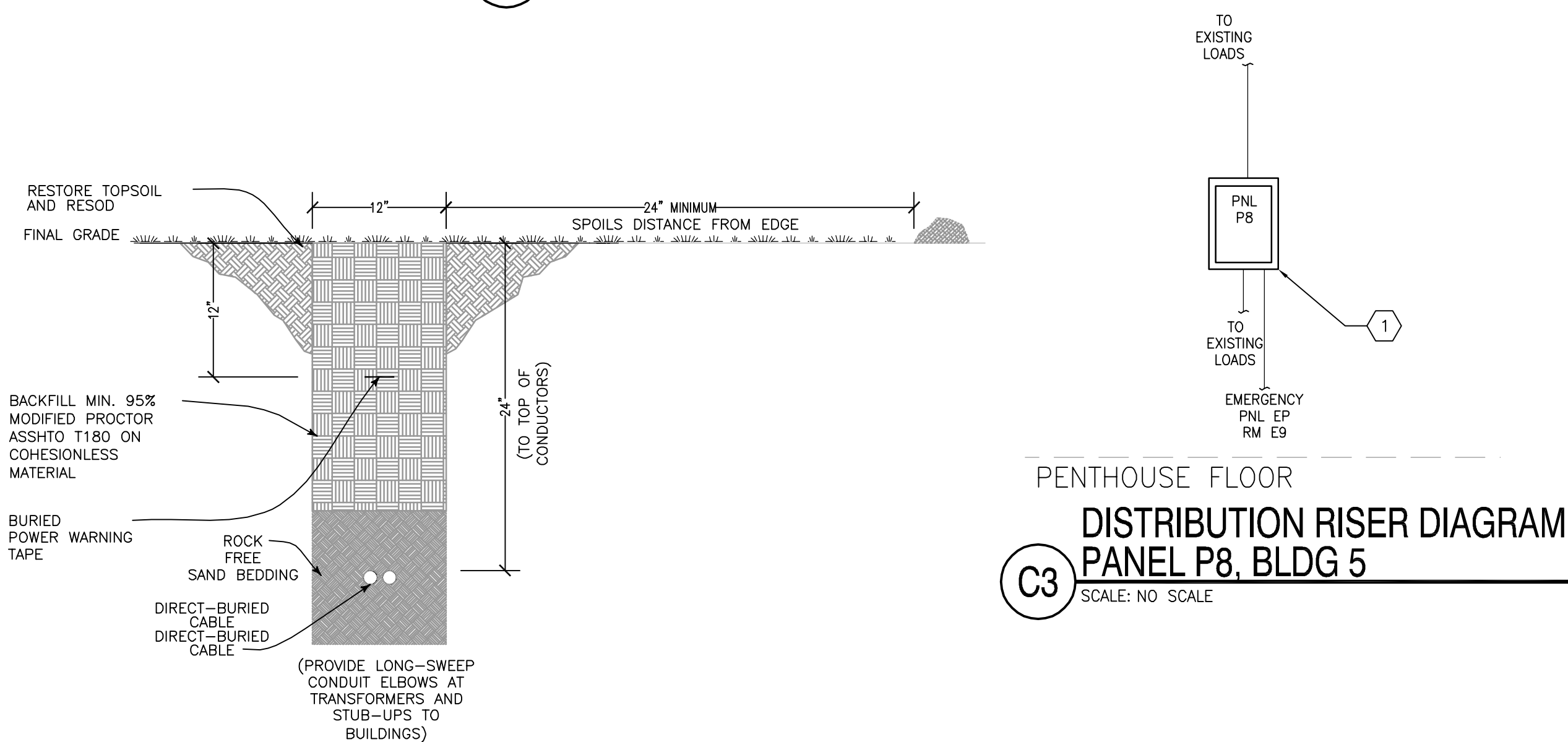
CONSULTANTS:			ARCHITECT/ENGINEERS:		Drawing Title ELECTRICAL RISER DIAGRAM - SITE		Project Title Install New Transformers for Buildings 28 and 38		Project Number 438-13-103		Office of Construction and Facilities Management Department of Veterans Affairs
			 TSP, Inc. 1112 N. West Ave. Sioux Falls, SD 57104 phone: (605) 336-1160 fax: (605) 336-7926 www.teamtsp.com TSP PROJECT #04121073 - PRIORITY 1		Approved: Project Director		Location Sioux Falls, South Dakota		Building Numbers 5, 11, 24, 28		
Revisions						Date 12/31/2012		Checked DLB		Drawing Number E-601 Dwg 6 of 7	
Date						Drawn JWN					



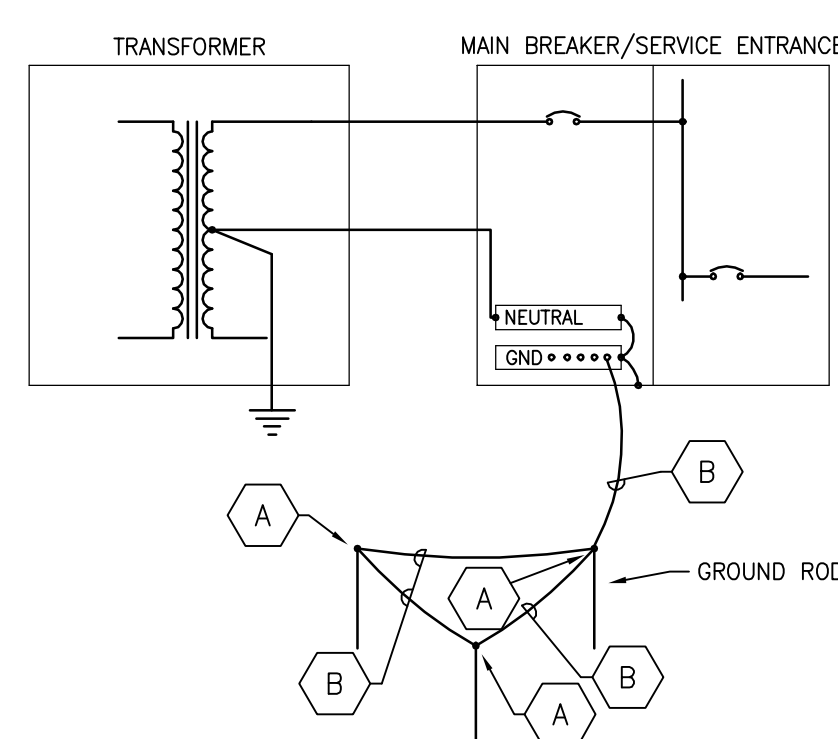
A2 DISTRIBUTION RISER DIAGRAM BLDG 24
SCALE: NO SCALE



B2 DISTRIBUTION RISER DIAGRAM BLDG 28
SCALE: NO SCALE



DISTRIBUTION RISER DIAGRAM
PANEL P8, BLDG 5
SCALE: NO SCALE



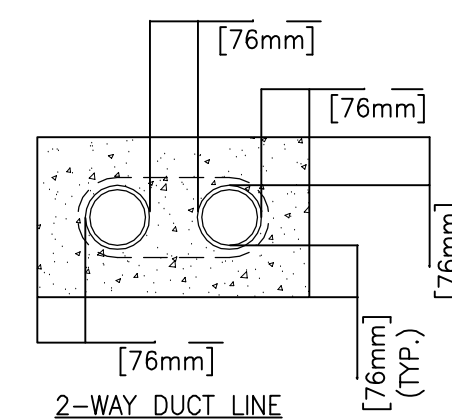
KEYNOTES

- A. CONNECT GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD WITH GROUND CONNECTOR.
- B. #6 AWG BARE COPPER CONDUCTOR.

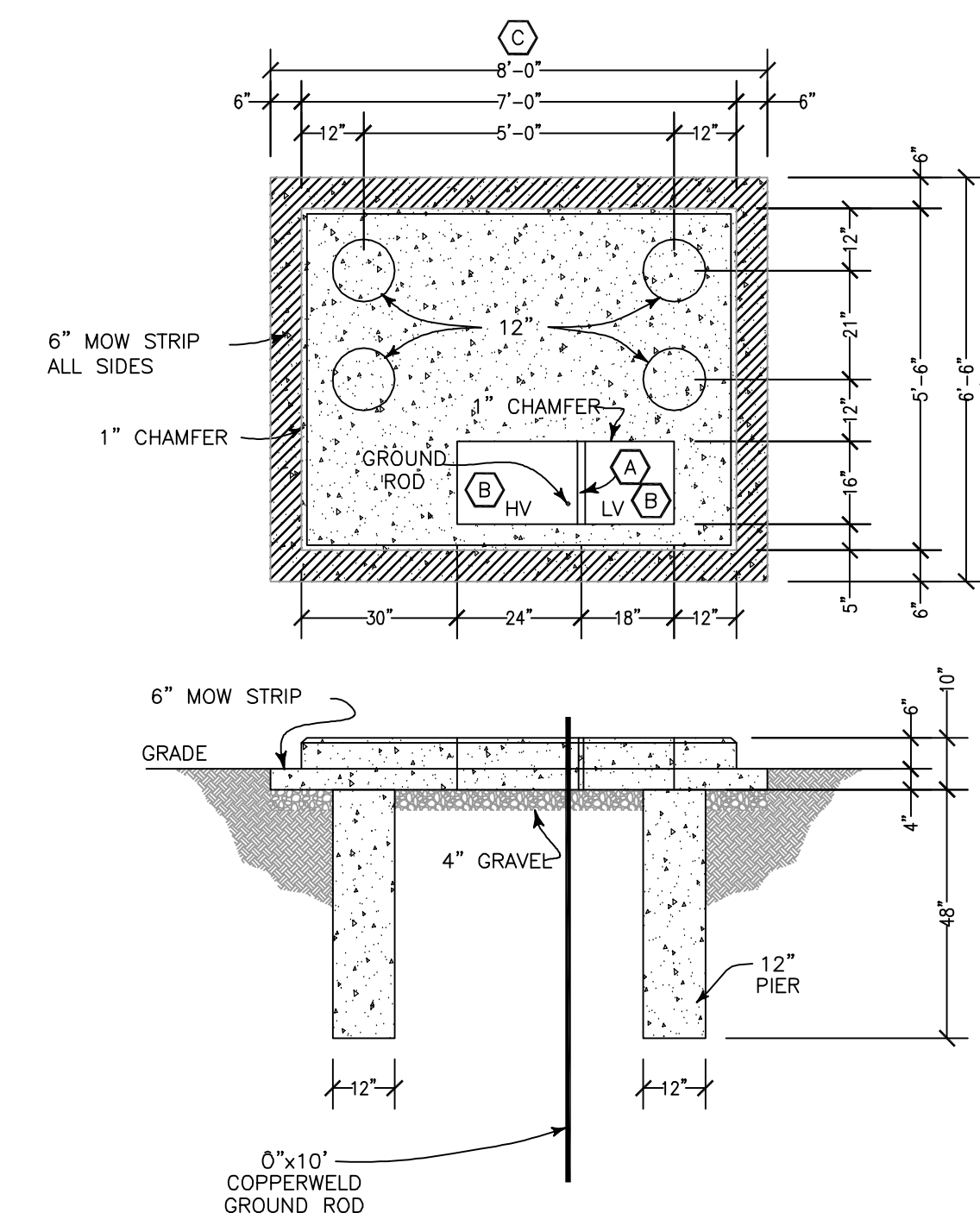
E2 ELECTRICAL GROUNDING DETAIL
SCALE: NO SCALE

- DUCT BANK NOTES:

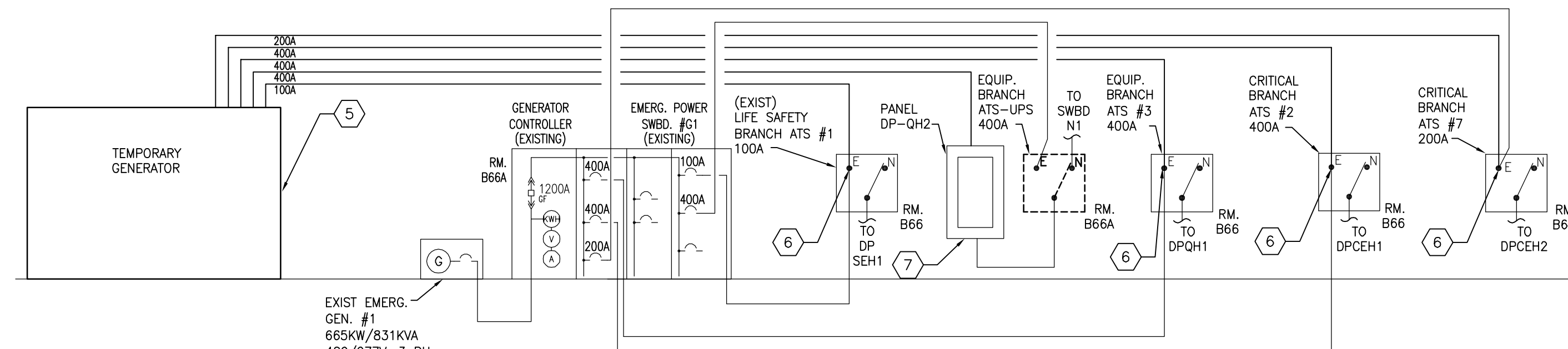
1. CONCRETE SHALL BE 2000 P.S.I. @ 28 DAYS, OR AS SPECIFIED.
2. PROVIDE REINFORCING RODS ON TOP AND BOTTOM OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
3. MINIMUM COVER TO TOP OF ENVELOPE SHALL BE 24" [610mm].
4. PROVIDE MINIMUM 6" [152mm] SPACE BETWEEN POWER AND TELECOMMUNICATION DUCTS. INCREASE SIZE AS REQUIRED.
5. INNERDUCT QUANTITY AND SIZE AS INDICATED ON PLANS.



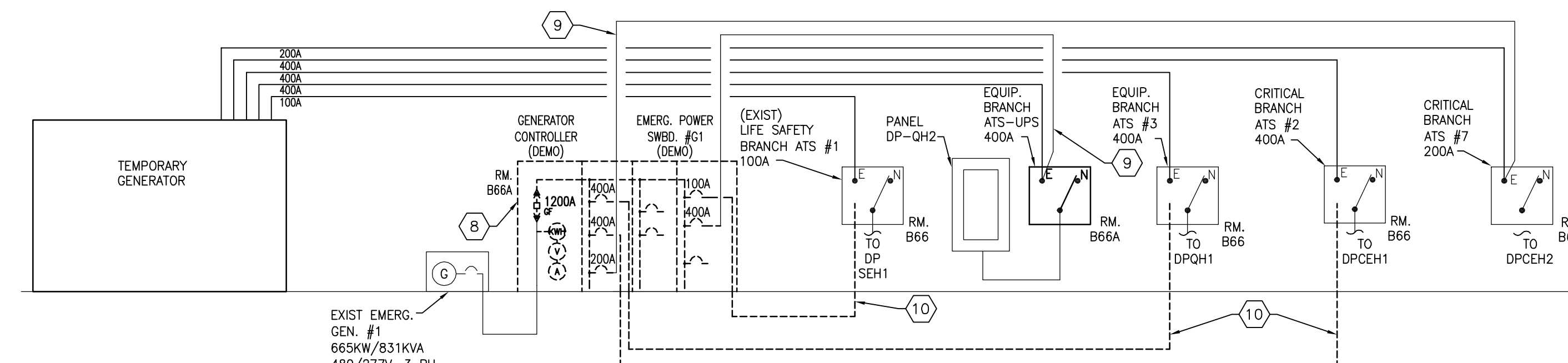
F2 DUCT BANK DETAIL
SCALE: NO SCALE



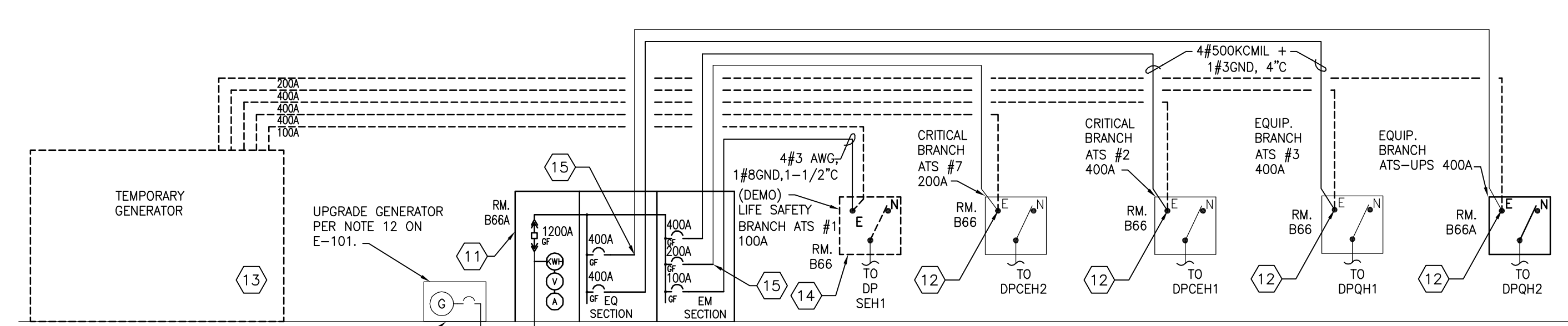
F4 EXTERIOR OIL FILLED TRANSFORMER PAD AND GROUNDING DETAIL
SCALE: NO SCALE



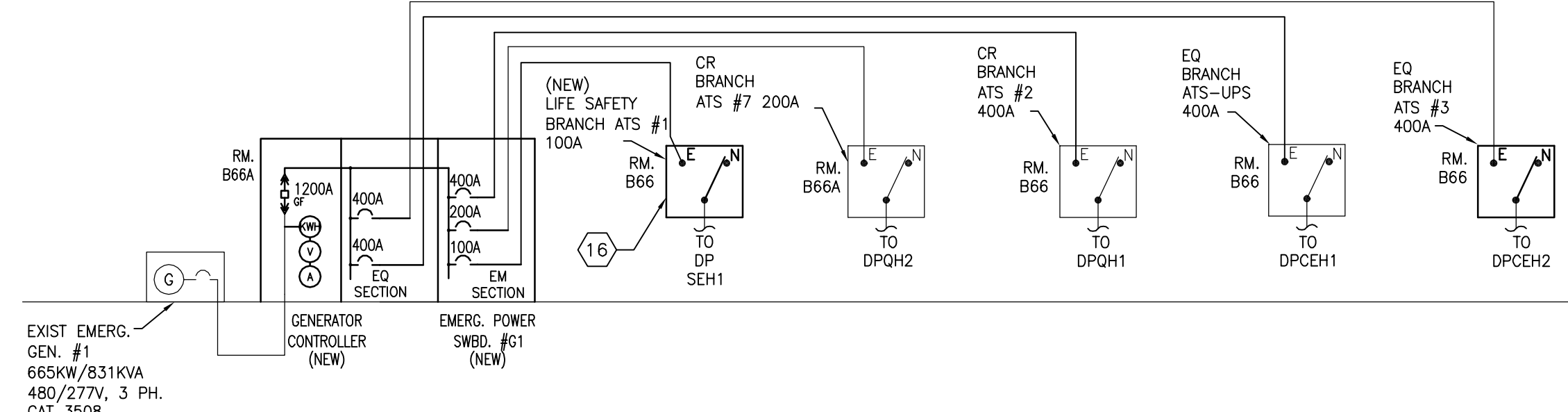
A4 DISTRIBUTION RISER DIAGRAM - PANEL G1, BLDG 5 SEQUENCE 1
SCALE: NO SCALE



B4 DISTRIBUTION RISER DIAGRAM - PANEL G1, BLDG 5 SEQUENCE 2
SCALE: NO SCALE



C4 DISTRIBUTION RISER DIAGRAM - PANEL G1, BLDG 5 SEQUENCE 3
SCALE: NO SCALE



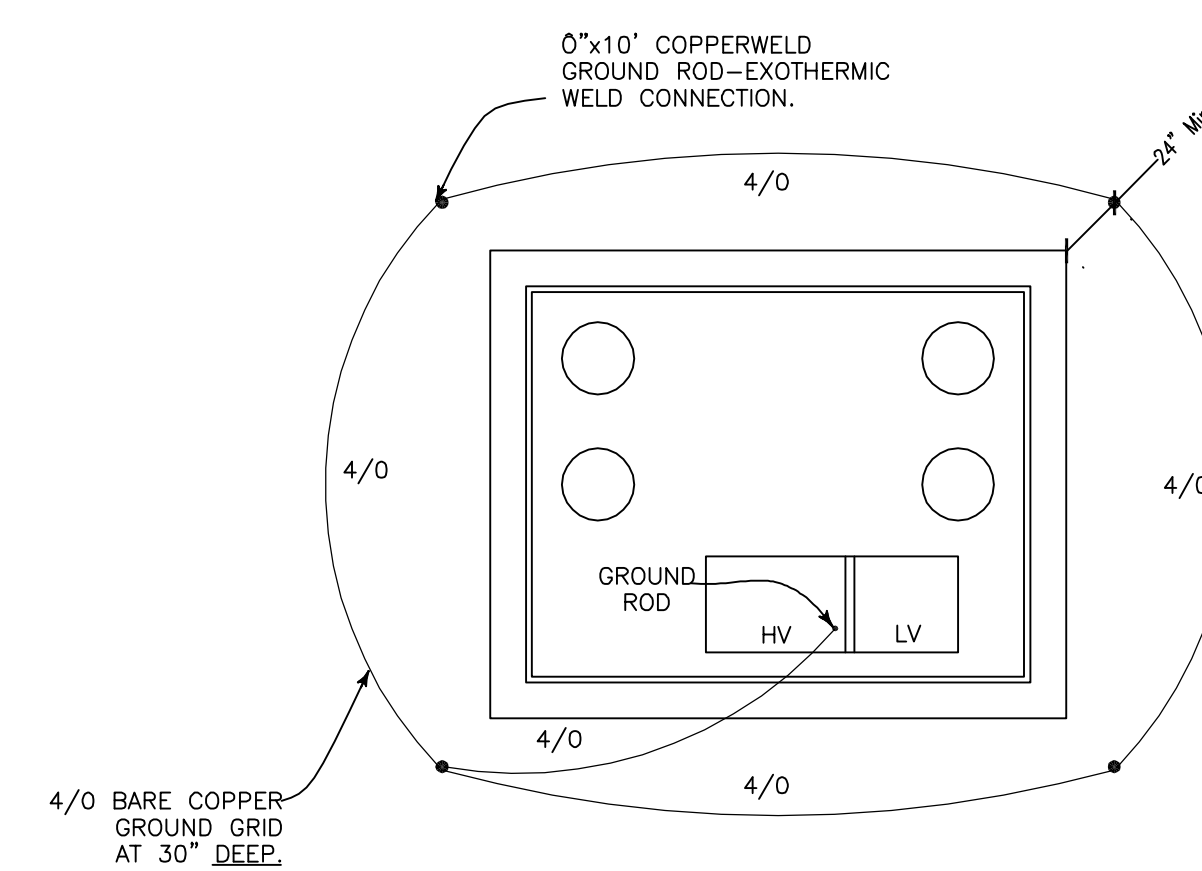
D5 DISTRIBUTION RISER DIAGRAM - PANEL G1, BLDG 5 SEQUENCE 4
SCALE: NO. SCALE

- (A) - 2" x 8" REDWOOD LUMBER ON EDGE AS BARRIER BETWEEN LV & HV COMPARTMENTS
- (B) - SIZE MEDIUM- AND LOW-VOLTAGE COMPARTMENTS ACCORDINGLY WITH CORRESPONDING TRANSFORMER SIZE.
- (C) - OVERALL DIMENSIONS OF TRANSFORMER PAD SHALL CORRESPOND WITH ASSOCIATED TRANSFORMER SIZE. PAD SHALL ALSO ACCOMMODATE METER CENTER, WHERE APPLICABLE. MAINTAIN 6" CLEARANCE AROUND TRANSFORMER AND 12" MINIMUM CLEARANCE TO OUTER EDGE OF MOW STRIP.

NOTE:

USE 3000 LB./SQ. INCH TEST CONCRETE.
USE 1/2" REBAR FOR REINFORCING.
RODS ARE TO BE SPACED 3" BELOW TOP
OF PAD, RODS ARE TO HAVE 3" OF COVER
ON OUTSIDE EDGE OF PAD, RODS
ARE NOT TO EXCEED 12" SPACING.
BED PAD ON 4" OF GRAVEL.

VERTICAL PIERS ARE TO BE
REINFORCED WITH 1/2" REBAR AND TIED
TO THE PAD REBARS.

[illegible]